Detection of Mosquito Borne Disease in Human Blood using Image Processing Technique

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Abstract

Malaria is a life-threatening disease which is caused by the plasmodium parasites and is transmitted in human blood through the bite of a female ANOPHELES mosquito. It is a dreadful disease and may even lead to death if not rapidly diagnosed. This project aims an automated system which will detect malaria parasite in human blood. There are basically four types of malaria namely, P.falciparum, P.vivax, P.ovale and P.malariae. Image processing technique is used in this proposed system thus automating the detection process. This method involves steps like image acquisition, pre-processing, segmentation, feature extraction and classification. The features such as shape, size, standard deviation, skewness, kurtosis is extracted from the segmented image and are used in the classification stage in order to give more accurate results. The type and the stage of malaria parasite will be determined using multi-stage support vector machine. Most of the previous methods have been limited to detection of either one or two types of malaria listed above i.e. P.falciparum, P.ovale, P.vivax, P.malariae but this thesis aims in detecting the fifth type of malaria i.e. P.knowlesi which is now spreading rapidly all over the world thus taking the classification process one step further in the field of research.
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Index Terms

Computer Science  Image Processing
Keywords

Anopheles, support vector machine, P.falciparum, P.vivax, P.ovale, P.malariae, P.knowlesi.